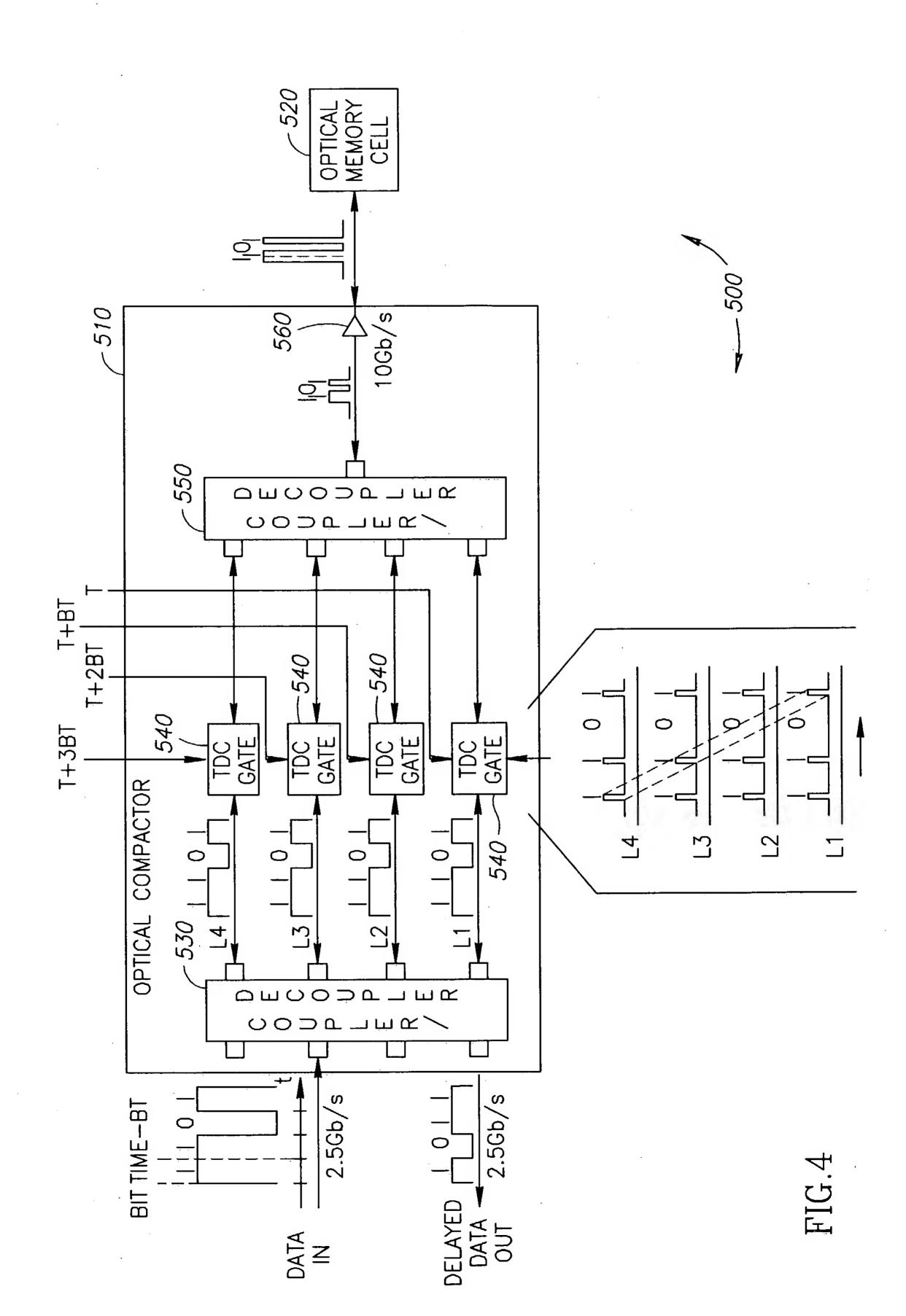
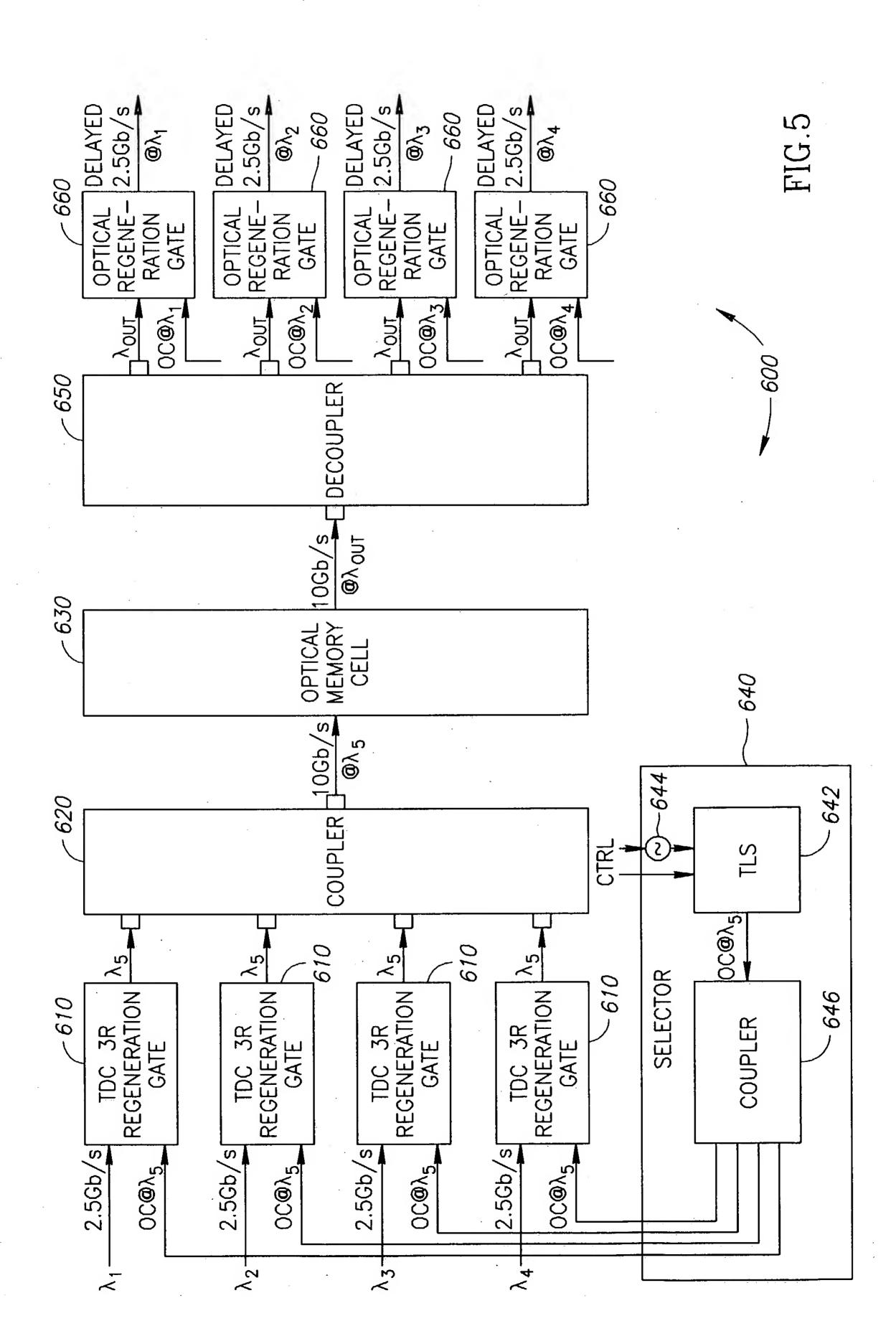


FIG.1

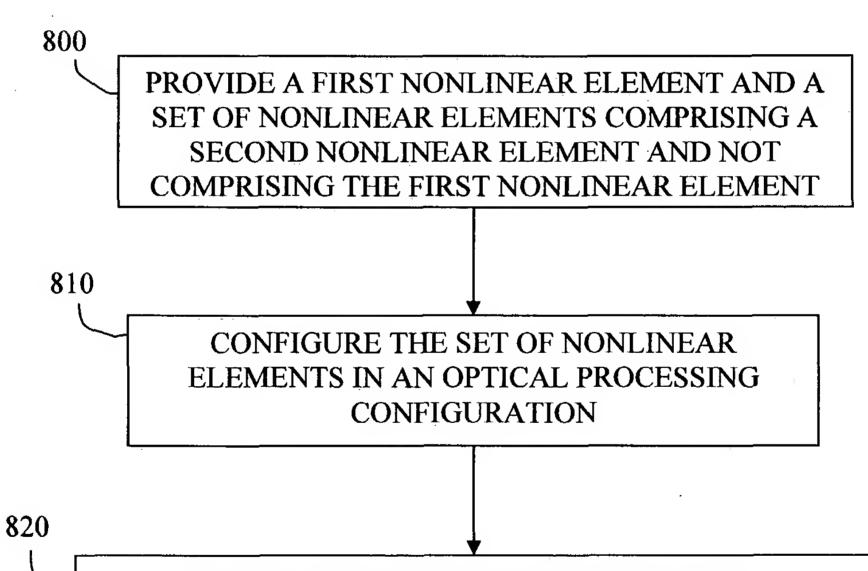




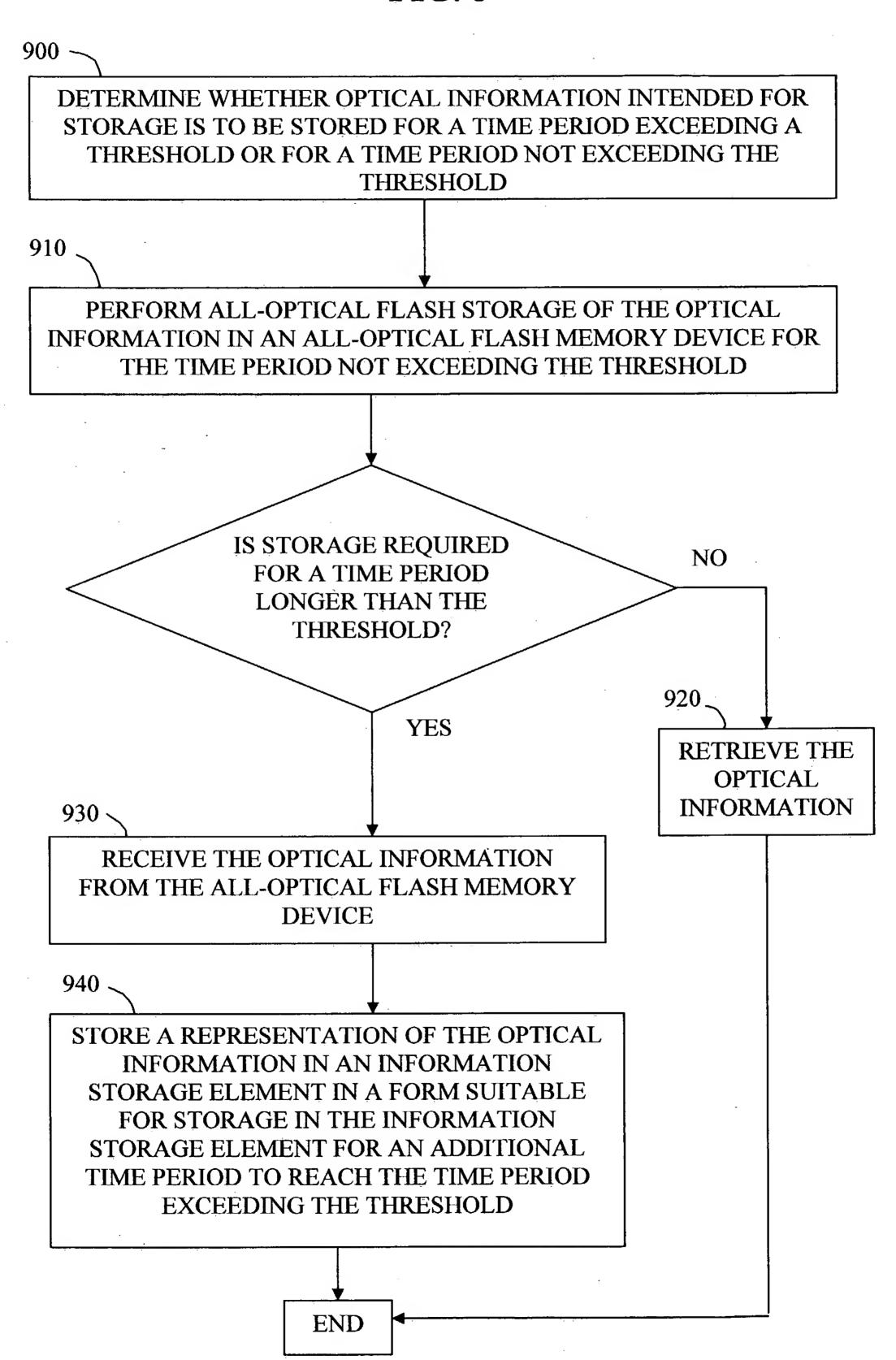
700

CONFIGURE A CONFIGURABLE INTEGRATED
OPTICAL GATE MATRIX THAT INCLUDES A SET OF
NONLINEAR ELEMENTS BY CONFIGURING A FIRST
SUBSET OF THE SET OF NONLINEAR ELEMENTS TO
FUNCTION AS A SET OF ON/OFF SWITCHES IN THE
"OFF" STATE TO ENABLE A SECOND SUBSET OF THE
SET OF NONLINEAR ELEMENTS TO BE CONFIGURED
IN AT LEAST ONE OPTICAL PROCESSING
CONFIGURATION

FIG. 7



ENABLE PERFORMANCE OF AN OPTICAL PROCESSING OPERATION ON AN INPUT OPTICAL SIGNAL BY THE SET OF NONLINEAR ELEMENTS TO OUTPUT AN OPTICAL PROCESSING RESULT TO A FIRST OUTPUT ROUTE WHEN THE SECOND NONLINEAR ELEMENT IS TURNED TO AN "ON" STATE AND THE FIRST NONLINEAR ELEMENT IS TURNED TO AN "OFF" STATE, AND SWITCH THE INPUT OPTICAL SIGNAL TO A SECOND OUTPUT ROUTE BY TURNING THE FIRST NONLINEAR ELEMENT TO AN "ON" STATE WHEN THE SECOND NONLINEAR ELEMENT IS TURNED TO AN "OFF" STATE



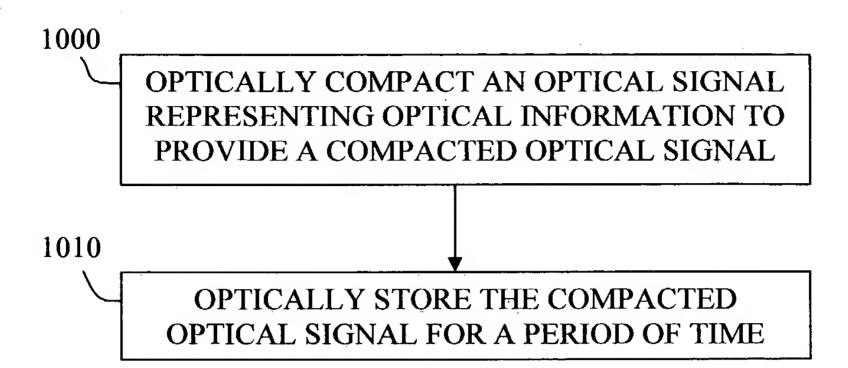


FIG. 10

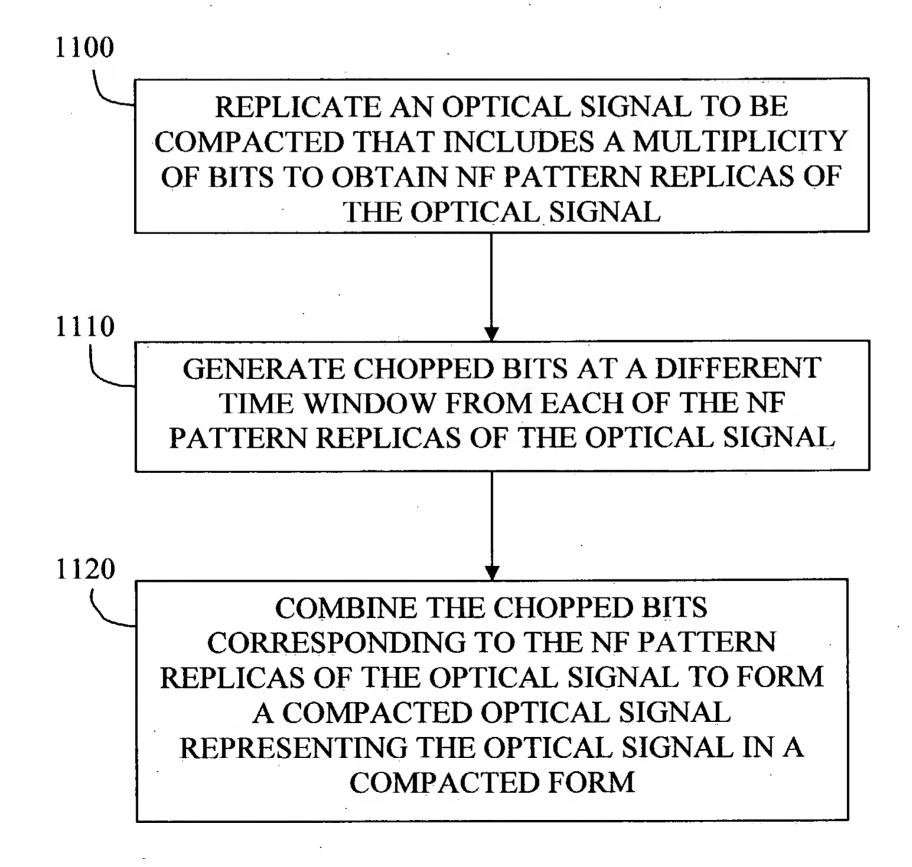


FIG. 11

1200

GENERATE, FROM EACH OF LK OPTICAL SIGNALS THAT ARE RESPECTIVELY CARRIED OVER LK SEPARATE CARRIER WAVELENGTHS $\lambda_1, \ldots, \lambda_{LK}$ AND AN OC SIGNAL AT λ_{OC} , CHOPPED BITS OVER λ_{OC} AT A DIFFERENT TIME WINDOW

1210

COMBINE THE CHOPPED BITS CORRESPONDING TO THE LK OPTICAL SIGNALS TO FORM A COMPACTED OPTICAL SIGNAL REPRESENTING A COMBINATION OF THE LK OPTICAL SIGNALS IN A COMPACTED FORM FOR STORING THE COMPACTED OPTICAL SIGNAL FOR A PERIOD OF TIME